



Features

- Analog and digital output signals
- Measurement range options, two-dimensional: $\pm 5^\circ$, $\pm 10^\circ$, $\pm 15^\circ$, $\pm 30^\circ$, $\pm 45^\circ$, $\pm 90^\circ$
- High accuracy: 0.05° (Typical)
- High resolution: 0.005°
- Ultra-low noise: $0.001^\circ/\sqrt{Hz}$
- Very low temperature offset drift: $\pm 0.002^\circ/C$ (Typical)
- Three-axis accelerometer (Digital output)
- Programmable bandwidth and response time
- Digital interface: 3.3V TTL UART

Applications

- Platform control, alignment, and stabilization
- Solar panel tracking and control systems
- Tilt sensing and leveling
- Weighting systems
- Telescopic and scissor platform monitoring
- Motion/position measurement
- Navigation and GPS compensation
- Robotic position sensing
- Agricultural and industrial vehicle tilt monitoring

Technical Data - specifications

Power source	4.1 – 38 VDC
Power consumption	20 ± 2 mA (@ 5 V)
Measurement range options	$\pm 5^\circ$, $\pm 10^\circ$, $\pm 15^\circ$, $\pm 30^\circ$, $\pm 45^\circ$, $\pm 90^\circ$ (two-dimensional)
Resolution	$< 0.005^\circ$
Accuracy	0.05° (Typical), 0.1° (Maximum error in full range)
Zero offset error [†]	$< \pm 0.05^\circ$ (@ $20^\circ C$) [‡]
Temperature offset drift	$\pm 0.002^\circ/C$ (Typical) $\pm 0.004^\circ/C$ (Maximum)
Noise density	$0.001^\circ/\sqrt{Hz}$

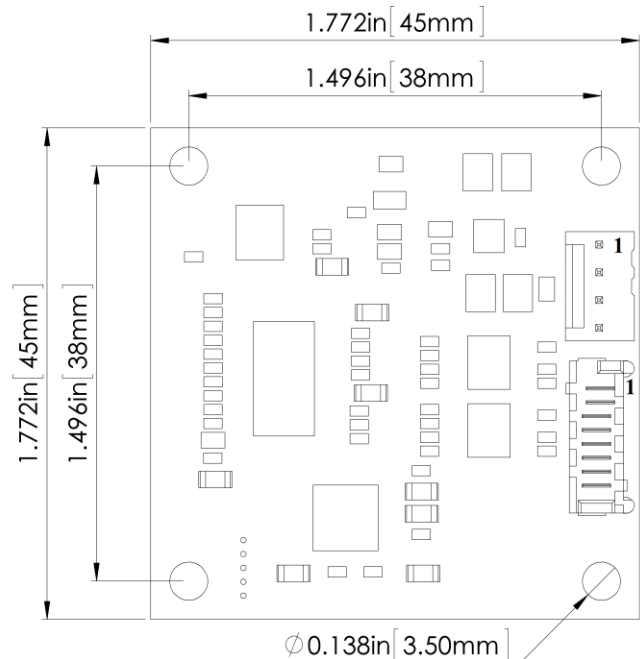
Analog Output

Analog voltage output	0.3 V to 4.7 [§] V
Sensitivity	150 mV/ $^\circ$: range $\leq \pm 15^\circ$ 34 mV/ $^\circ$: $\pm 30^\circ \leq$ range $\leq \pm 60^\circ$ 25 mV/ $^\circ$: $\pm 90^\circ$ full range
Reference voltage output	2.5 ± 0.003 V

Digital Output

Serial interfaces	3.3V TTL UART
Baud rate	2.4kbps – 921.6kbps selectable, default: 115.2kbps
Data format	ASCII, port settings: 1 start bit, 8 data bits, 1 stop bit & no parity
Output data rate	1, 2, 5, 10, 20, 50, 100, and 200 Hz selectable
Accelerometer data	± 2 g/ ± 4 g/ ± 8 g selectable
LED indicator	Data transmission rate
GUI software	WinCTi-Tilt®
Temperature sensor resolution	$0.2^\circ C$
Operating Temperature	$-25^\circ C$ to $+80^\circ C$ ($-13^\circ F$ to $+176^\circ F$)

Dimensional Drawing



[†] Zero g offset can be easily corrected and saved by user with digital interface command.

[‡] Units can be calibrated between $-25^\circ C$ and $80^\circ C$ on request.

[§] The maximum analog output voltage 4.7 V (for $\pm 90^\circ$ full range) needs the power source ≥ 5.25 V.

Terminal Assignment

X1	Name	Description	Type
Pin 1	+Vin	+Vin (4.1 V to 38 V DC)	Input
Pin 2	Vref	Voltage reference (2.5 V)	Output
Pin 3	GND	Ground	Input
Pin 4	OUT X	Analog signal, X axis	Output
Pin 5	OUT Y	Analog signal, Y axis	Output
Pin 6	OUT T	Analog signal, Temperature	Output
Pin 7	RX	Digital signal, receive data	Input
Pin 8	TX	Digital signal, transmit data	Output

X2	Name	Description	Type
Pin 1	+Vin	+Vin (4.1 V to 38 V DC)	Input
Pin 2	GND	Ground	Input
Pin 3	OUT X	Analog signal, X axis	Output
Pin 4	OUT Y	Analog signal, Y axis	Output

Ordering Information

Part Number	Range
TILT-15-X-05	±5°
TILT-15-X-10	±10°
TILT-15-X-15	±15°
TILT-15-X-30	±30°
TILT-15-X-45	±45°
TILT-15-X-90	±90°

Warranty: This product has 18 months limited warranty.
For more information, please visit:

www.CTiSensors.com/warranty

**This product is fully designed and
manufactured in the U.S.A.**

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